Space Weather Forecast

Issued on Wednesday, 02 March 2022 at 00:17 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of G1 Minor Geomagnetic Storms later day 3 and day 4. Probable increasing Slight Chance of R1 Minor Radio Blackouts.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was very low in the last 24 hours, with no notable X-ray flares recorded. There are currently five numbered sunspot regions on the visible disc. Those in the western solar hemisphere comprise two single mature, stable, uni-polar sunspot regions, along with a small and weakening bi-polar group. The eastern solar hemisphere contains two bi-polar groups, the larger and more magnetically complex region in the southeast quadrant, with a smaller and weakening, bi-polar group in the northeast.

No Earth directed CMEs (coronal mass ejections) have been observed.

Solar Wind / Geomagnetic Activity: Earth is currently in an elevated positive polarity fast solar wind. The solar wind speed fluctuated slightly around elevated levels, although the number of particles and their associated magnetic field were within normal background. The net result of these solar wind measures was provisionally quiet geomagnetic activity throughout. Geomagnetic activity was Quiet to Unsettled (Kp 1 to 3).

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be Low or Very Low, but with a small chance of isolated M-class flares. Chances may increase later in the period as the potential returning regions transit around the eastern limb.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs currently feature in the forecast. Geomagnetic activity is expected to be occasionally Unsettled, with a Slight Chance of isolated Active intervals, declining to mainly Quiet conditions during day 2. The next coronal hole fast stream of solar wind is more likely to give G1/Minor Storm periods, due to the proximity to the spring equinox and its negative polarity, on days 3 and 4 (04 and 05 March).

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	40	40
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	5	10	10	10
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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